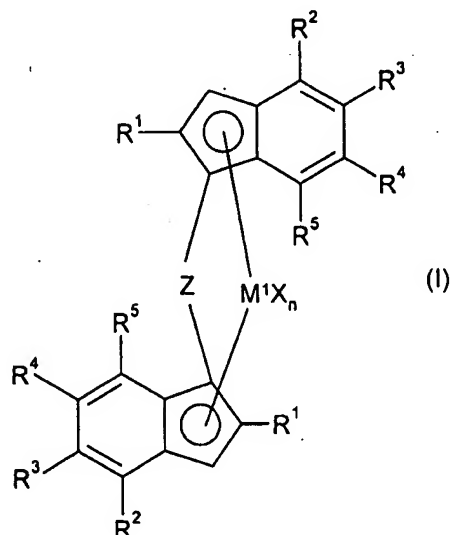


AMENDMENTS TO THE CLAIMS

1. (Previously presented) An organometallic transition metal compound of the formula (I)



where

- M^I is an element of group 3, 4, 5 or 6 of the Periodic Table of the Elements or the lanthanides,
- X are identical or different and are each halogen, hydrogen, C_1 - C_{20} -alkyl, C_2 - C_{20} -alkenyl, C_6 - C_{22} -aryl, alkylaryl or arylalkyl each having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part, $-OR^6$ or $-NR^6R^7$, where two radicals X may also be joined to one another,
- n is a natural number from 1 to 4 which corresponds to the oxidation number of M^I minus 2,
- R^I is hydrogen or a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, a C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part or a C_4 - C_{24} heteroaromatic radical selected from the group consisting of substituted or unsubstituted thienyl radicals or of substituted or unsubstituted furyl radicals,
- R^2 is a substituted or unsubstituted C_6 - C_{40} -aryl radical,

- R^3 is hydrogen or a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part, or the radicals R^2 and R^3 together form a ring system,
- R^4 is hydrogen or a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, a C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,
- R^5 is a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, a C_2 - ~~C_{20}~~ ²⁰-alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,
- and
- Z is a divalent group $CR^8R^9-CR^{10}R^{11}$, where R^8 , R^9 , R^{10} and R^{11} are identical or different and are each hydrogen or a trimethylsilyl group, a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -fluoroalkyl group, a C_6 - C_{10} -fluoroaryl group, a C_6 - C_{10} -aryl group, a C_8 - C_{40} -arylalkenyl group, a C_7 - C_{40} -arylalkyl group or a C_7 - C_{40} -alkylaryl group or two adjacent radicals together with the atoms connecting them may form a saturated or unsaturated ring having from 4 to 15 carbon atoms.

2. (Original) An organometallic transition metal compound of the formula (I) as claimed in claim 1,

where

- M^1 is an element of group 4 of the Periodic Table of the Elements,
 n is 2,
 R^1 is C_1 - C_{10} -alkyl,
 R^3 is hydrogen or a C_1 - C_{10} -alkyl radical,
 R^4 is hydrogen or a C_1 - C_{10} -alkyl radical,
 R^5 is a C_1 - C_{10} -alkyl radical and
Z is CH_2-CH_2 .

3. (cancelled)

4. (cancelled)

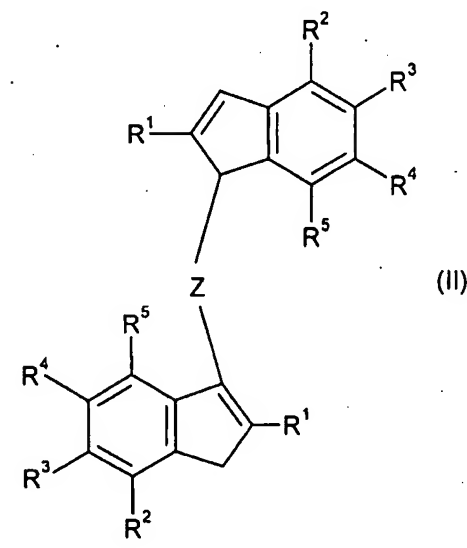
5. ³ (Previously presented) A catalyst system for the polymerization of olefins comprising at least one organometallic transition metal compound as claimed in claim 1 and at least one cocatalyst as cation-forming compound.

6. ⁴ (Original) A catalyst system as claimed in claim 5 which further comprises a support.

7. ⁵ (Previously presented) A process for preparing polyolefins by polymerization or copolymerization of at least one olefin in the presence of a catalyst system as claimed in claim 5.

8. (cancelled)

9. ⁸ (currently amended) A process for preparing an organometallic transition metal compound, which comprises reacting a biscyclopentadienyl ligand system ~~as claimed in claim 3~~ or a bisanion prepared therefrom with a transition metal compound, the biscyclopentadienyl ligand system comprising a compound of formula (II):



or its double bond isomers.

where

R¹ is hydrogen or a cyclic, branched or unbranched C₁-C₂₀-alkyl radical, a C₂-C₂₀-alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part or a C₄-C₂₄ heteroaromatic

radical selected from the group consisting of substituted or unsubstituted thienyl radicals or of substituted or unsubstituted furyl radicals,

R² is a substituted or unsubstituted C₆-C₄₀-aryl radical,

R³ is hydrogen or a cyclic, branched or unbranched C₁-C₂₀-alkyl radical, C₂-C₂₀-alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,
or the radicals R² and R³ together form a ring system,

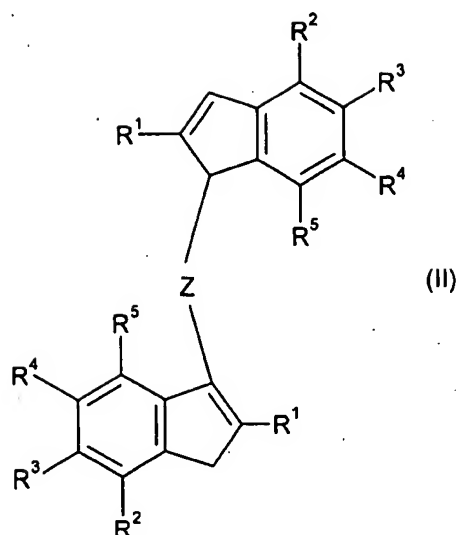
R⁴ is hydrogen or a cyclic, branched or unbranched C₁-C₂₀-alkyl radical, a C₂-C₂₀-alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

R⁵ is a cyclic, branched or unbranched C₁-C₂₀-alkyl radical, a C₂-C₂₀-alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

and

Z is a divalent group CR⁸R⁹-CR¹⁰R¹¹, where R⁸, R⁹, R¹⁰ and R¹¹ are identical or different and are each hydrogen or a trimethylsilyl group, a C₁-C₁₀-alkyl group, a C₁-C₁₀-fluoroalkyl group, a C₆-C₁₀-fluoroaryl group, a C₆-C₁₀-aryl group, a C₈-C₄₀-arylalkenyl group, a C₇-C₄₀-arylalkyl group or a C₇-C₄₀-alkylaryl group or two adjacent radicals together with the atoms connecting them form a saturated or unsaturated ring having from 4 to 15 carbon atoms.

10. ⁹ (currently amended) A biscyclopentadienyl ligand system as claimed in claim 3, wherein of formula (II):



or its double bond isomers,

where

R^1 is hydrogen or a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, a C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part or a C_4 - C_{24} heteroaromatic radical selected from the group consisting of substituted or unsubstituted thienyl radicals or of substituted or unsubstituted furyl radicals,

R^2 is a substituted or unsubstituted C_6 - C_{40} -aryl radical,

R^3 is hydrogen or a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part, or the radicals R^2 and R^3 together form a ring system,

R^4 is hydrogen or a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, a C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

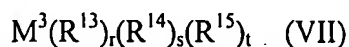
R^5 is a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, a C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

and

Z is a divalent group $CR^8R^9-CR^{10}R^{11}$, where R^8 , R^9 , R^{10} and R^{11} are identical or different and are each hydrogen or a trimethylsilyl group, a C_1 - C_{10} -alkyl group, a

C₁-C₁₀-fluoroalkyl group, a C₆-C₁₀-fluoroaryl group, a C₆-C₁₀-aryl group, a C₈-C₄₀-arylalkenyl group, a C₇-C₄₀-arylalkyl group or a C₇-C₄₀-alkylaryl group or two adjacent radicals together with the atoms connecting them form a saturated or unsaturated ring having from 4 to 15 carbon atoms.

11. (Previously presented) A catalyst system as claimed in claim 5 further comprise a metal compound of the formula (VII)



wherein

M³ is an alkali metal, an alkaline earth metal or a metal of group 13 of the Periodic Table,

R¹³ is hydrogen, C₁-C₁₀-alkyl, C₆-C₁₅-aryl, alkylaryl or arylalkyl each having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part,

R¹⁴ and R¹⁵ are identical or different and are each hydrogen, halogen, C₁-C₁₀-alkyl, C₆-C₁₅-aryl, alkylaryl, arylalkyl or alkoxy each having from 1 to 10 carbon atoms in the alkyl radical and from 6 to 20 carbon atoms in the aryl radical,

r is an integer from 1 to 3,

and

s and t are integers from 0 to 2, where the sum r+s+t corresponds to the valence of M³.

12. (Previously presented) A catalyst system as claimed in claim 11 wherein M³ is boron, aluminum, gallium, indium or thallium.